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EXPLORATORY LAPAROT-
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POSSIBLE ERRORS IN THE DIAGNOSIS OF ABDOMINAL CANCER—A PLEA FOR EXPLORATORY LAPAROTOMY —ILLUSTRATIVE CASES.*

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NOT so many years have elapsed since the abdominal cavity was a veritable *terra incognita*. In many respects, and to some physicians and surgeons, it is still a world of mystery. It has furnished a convenient hiding place for many of the budgets of diagnostic error which have made so large a part of the history of medicine and surgery. And yet, within its hidden recesses have been performed some of the most brilliant and daring feats of surgery.

With the general progress in medicine and surgery which has marked the last quarter-century, modern methods of diagnosis, chemical, bacteriological, physical, and electrical, have brought us into more intimate acquaintance with the abdominal cavity and the diseases to which its contents are subject, enabling us, with a fair degree of accuracy, to predict what will be revealed by operation. In many cases, however, it is impossible, by any external diagnostic methods, to ascertain the exact conditions to be dealt with, and consequently we are unable to apply effectual remedial agencies. In such cases exploratory laparotomy comes into requisition.

The purpose of this brief paper is to emphasize, not by statistics, but by illustrative cases, the importance of exploratory laparotomy, not as a last resort, but as an early means of making an absolutely correct diagnosis, not only as to the presence and extent, but as to the *site* of cancer. The most telling arguments in favor of opening the abdomen and seeing and feeling the actual state of affairs, are cases in which patients have been allowed to go untreated, or to be incorrectly treated, until it is too late for curative surgical intervention, and cases in which, through inexperience, perhaps, the surgeon is unable to make the correct diagnosis even when the abdomen is opened. More frequent resort to exploratory laparotomy, and the development of skill in differential diagnosis when this is done, would be the means of saving many lives, and of prolonging the span of many more, where otherwise mistakes in diagnosis must inevitably lead to disastrous results, as some of the appended histories show.

The following cases, the number of which might be multiplied many times, from the experience of the abdominal surgeon, are selected to illustrate the six most common sources of error in the diagnosis of abdominal cancer.

TYPE I. Cases diagnosed as Cancer, with no Cancer Present.—This is not an uncommon class of cases, for the reason that there are so many conditions which, without exploratory laparotomy, may be so easily mistaken for cancer of some portion of the abdominal contents. The real condition may be easily amenable to surgical intervention and cure, yet the patient may be considered incurable and operation of too little avail to warrant the supposed contingent risks.

The following are the conditions which are most commonly mistaken for abdominal cancer:

1. Appendicitis with abscess formation (Case 1, Type I).
2. Tuberculosis of kidney, liver, spleen, etc. (Case 2, Type I).
3. "Stomach trouble"—healed ulcer, with pyloric stenosis (Case 3, Type I).
4. Stone in kidney, with cachexia, etc. (Case 4, Type I).
5. Gallstones.

* Read at the annual meeting of the Medical Society of the State of New York, at Rochester April 29, 1913.

6. *Apparent Tumors of Stomach.* (Kemp). Conditions mistaken for :
7. Prolapse of left lobe of liver.
8. Pulsating aorta.
9. Thickening of abdominal muscles (recti).

Gastroplosis is usually associated with these conditions consequently there is generally a long history of *emaciation*.

10. Simple adhesions of the stomach, generally following gall-bladder disease, gastric ulcer, or localized peritonitis.

11. *Syphilis*, according to Kemp, may present symptoms which simulate carcinoma of the stomach, unless very careful examination is made. He cites three cases. (Case 5, Type I, illustrates this point).

Kemp's cases: (1) Sclerosis of stomach; (2) Cirrhosis of liver; (3) Stenosis of pylorus, due to gummatous tumor, simulating malignancy.

12. Aneurysm of celiac axis simulating carcinoma of pylorus.

13. Chronic gastritis.

14. Nervous gastralgia.

The following cases illustrate this class of mistakes:

TYPE I.

CASE 1.—M. E. F., female, widow, aged 56, ten children.

Previous History.—Two years previous to consulting me, October 21, 1912, was operated upon for right inguinal hernia. A large sinus formed in the hernia wound. Had been losing strength and flesh for a year when first seen. Considerable apparent cachexia. Large abdominal tumor, which had increased in size, occupying the center of the abdomen, seemingly connected with the stomach and intestine. This had been diagnosed by several as irremovable cancer and the patient told that she was incurable. Sought relief by some form of serum treatment, going for this purpose to several dispensaries and hospitals, from which she was sent away with no hope.

Physical Examination.—Careful physical examination raised a grave doubt in my mind as to the presence of cancer. Exploratory laparotomy advised.

Operation. New York Skin and Cancer Hospital, November 16, 1912. A mass the size of a child's head was found in the lower portion of the abdomen. It was made up of great omentum enveloping a large abscess, in the center of which was the appendix. The appendix was removed, adhesions broken up, and abscess drained. There was no evidence of cancer—merely subacute appendicitis, with abscess in the omentum. The sinus in the right side, which led down to an unabsorbed stitch, was curetted.

Subsequent History.—Uneventful recovery. The cachexia, which was due to low grade sepsis, not cancer, disappeared. April 1, 1913, perfectly well and strong.

TYPE I.

CASE 2.—Mrs. G. A. A., aged 50. One child. Referred by Dr. Cora M. Ballard, of Brooklyn, February 15, 1909.

Previous History.—Pain in left side of long duration, with gradually growing tumor in same region. Loss of strength and flesh, with chills. Marked cachexia. Urine negative. Consulted a number of physicians and surgeons, some of whom made the diagnosis of irremovable cancer, involving kidney, spleen and liver. Dr. Ballard was called and doubted the utter hopelessness of the condition, and the writer saw the patient as a last effort for relief, with no thought of cure.

Physical Examination.—Mass in left upper quadrant of abdomen size of liver.

Diagnosis.—Abscess of left kidney.

Operation. New York Medical College and Hospital for Women, February 22, 1909. Uretero-nephrectomy for pyelo-nephrolithiasis, with perinephric and peri-ureteral abscesses. Evacuation of about a quart of pus.

Pathological Report. Dr. Louis Rene Kaufman.—“Acute pyonephritis. Abscess of pelvis of kidney, due probably to the bacillus coli communis, with multiple calculi of urates and uric acid.

"Miliary abscesses are present in both medulla and cortex among remnants of kidney tissue, with advanced necrosis and hemorrhage; very little kidney substance is left and none is normal in sections examined."

Subsequent History. Uneventful recovery. March 30, 1910, a sinus formed in the scar, which was curetted. It healed, but later formed again. In November, 1911, a new sinus started, whereupon the patient was given an autogenous colon bacillus vaccine. Perfectly well ever since.

TYPE I.

CASE 3.—W. H. B., male, aged 46. Referred by Dr. C. R. Woods of Hamden, N. Y., February 12, 1909.

Previous History.—"Stomach trouble" for six years, growing steadily worse. For two years vomited "by spells." Coffee-ground material for the past year. Loss of flesh and strength.

X-ray Examination, by Dr. Lewis Gregory Cole: "Hour-glass contraction of stomach, with dilatation of the upper segment of the hook, just above the constriction on the lesser curvature. . . . Whether this is from an old ulcer or a new growth I do not feel justified in stating."

Diagnosis.—Chronic indurated ulcer with probable malignant change. Impossible to determine the exact nature by other means than exploratory laparotomy. All other usual diagnostic methods employed.

Operation, New York Polyclinic Hospital, April 5, 1909. Large mass found at pyloric end of stomach, causing considerable pyloric stenosis. The diseased area was so large, and the glands so enlarged that if the condition were malignant it seemed hardly warranted to remove the mass and the diseased glands. However, believing it to be benign, it was decided to resort to posterior gastroenterostomy.

Subsequent History.—Uneventful recovery. Marked gain in flesh and strength. Pains slowly disappeared. Perfectly well and strong April 1, 1913.

TYPE I.

CASE 4.—L. C., male, railway Engineer, aged 69 years. First seen at one of the suburban hospitals, May 7, 1909.

Previous History.—Had had stone in the bladder twenty-five years before. For many months had been slowly losing flesh and strength, with pain in the abdomen, and the appearance of a slowly growing tumor, which was diagnosed as cancer of the stomach, involving the left kidney and other abdominal organs. Pronounced inoperable, and patient sent to hospital, January 8, 1909, for palliative treatment.

Physical Examination.—May 2, 1909. Markedly cachectic, very weak and emaciated. Made the diagnosis of stone in the kidney, with abscess, but no malignancy. Advised exploratory operation.

Operation.—May 7, 1909. Diagnosis verified. Large stone found, with abscess formation within and around the left kidney, but absolutely no cancer. Stone removed and abscess drained.

Subsequent History.—On account of the patient's weakened condition, despite saline infusion and all other available measures, he failed to rally from the operation, dying during the same day.

NOTE.—The cachexia in this case, which was mistaken for that of cancer, was evidently of non-malignant origin. An exploratory laparotomy several months earlier would have revealed the true cause of the patient's failing health, and would undoubtedly have saved his life.

TYPE I.

CASE 5.—S. C. S., male, butcher, aged 33. Referred by Dr. W. B. Thompson, of Brooklyn, November 28, 1909.

Previous History.—History of "stomach trouble" and pain at times in the right side. Would vomit for days at a time. Pain very great after eating. Absolutely no specific history obtainable. Patient consulted several physicians, with varying results as to diagnosis. By some the trouble was pronounced ulcer of the stomach, by others locomotor ataxia, hyperchlor-

hydria, chronic appendicitis, and early malignancy. Received medical treatment but without relief.

Physical Examination.—No evidence of a tumor, but a distinct area of epigastric resistance. There was pain and tenderness upon palpation.

X-ray Examination, by Dr. Lewis Gregory Cole, showed constriction on the greater curvature of the stomach, very close to the pylorus. This constriction, although not very extensive, was persistent in all the plates, and was quite suggestive of carcinoma.

Operation, New York Polyclinic Hospital, January 14, 1910. Laparotomy. Appendix markedly diseased, containing two large stones as large and longer than the phalanx of the index finger. Some adhesions around the appendix and also around the outer side of the gall-bladder. No evidence of cancer of stomach although wall congested and thickened.

Subsequent History.—Uneventful recovery from operation. Symptoms relieved for a time but soon returned, becoming as severe as before surgical treatment. Symptoms continuing, early in 1912 a Wassermann test was made, with positive findings. He was given "606," followed by inunctions of mercury, with relief of all symptoms. Well April 1, 1913.

NOTE.—It may be of interest in connection with this case to note that in a series of cases examined by one of the Fellows of the Research Department of the New York Skin and Cancer Hospital,* Wassermann test has been positive in only two out of 212 cases of cancer. In one of these it was weak, in the other strong, and in both specific disease was a possibility. In over 1,400 control cases of syphilis the test has been positive in each instance.

The case under consideration is an excellent illustration, in obscure abdominal cases, of the need of resort to all modern diagnostic measures, including those for syphilis. It is known that syphilis may cause various gastric disorders as well as constriction of the pylorus or other part of the stomach.

The resulting symptoms may be easily confounded with those of carcinoma.

That this man had a badly diseased appendix and needed its removal was undoubtedly true, but appendectomy did not cure him. Anti-syphilitic treatment did. It would be interesting to know what would have happened if the appendix had been left.

TYPE II.

Cases of Cancer, not recognized as such, but diagnosed and treated as something else. Just as in the foregoing type the various conditions mentioned might be mistaken for cancer, so in this type, cancer may be mistaken for the various conditions named.

Even upon exploratory operation the cancer may be overlooked, because of the presumptive existence of some other condition. Cases of this type call for the most careful observation of the entire field of exploration, in order that no focus of malignancy, however small, may be overlooked.

TYPE II

CASE 6.—G. D., female, married, aged 45. Admitted to the New York Skin and Cancer Hospital.

Previous History.—History of chronic intestinal stasis, with what seemed to be repeated attacks of appendicitis. Had been ill for many months with pain in right side; diagnosed as chronic appendicitis. Three weeks before admission was operated upon and a mass confined to the head of the cecum and appendix was found. Cut into and drained.

Physical Examination.—Cancerous sinus at the site of the scar from the "appendicitis" operation. This was discharging mixed infection pus. Mass in right iliac fossa.

Operation, December 12, 1912, exploratory laparotomy. The cancerous sinus was found surrounded by large and small intestine, which had become part of the sinus wall. The original growth was easily removable, and there were no glands which could not have been removed with ease. But

* Fox, Frederick J., "The Wassermann Reaction in Cancer," *Medical Record*, August 16, 1913.

the extension by contiguity to two feet of small intestine, cecum and ascending colon, made it impossible to thoroughly eradicate the disease.

Subsequent History.—Patient died a few days after operation.

NOTE.—This case emphasizes very strongly not only the importance of careful diagnosis, previous to laparotomy operation, but also the importance of the *careful exploration* of the field involved. It is an excellent illustration of the danger of breaking down the barriers by means of which nature endeavors to protect the rest of the organism from invasion by cancer. When this patient was operated upon for presumptive appendicitis, it is quite probable that the diseased tissue could have been entirely removed, without danger of the autoinfection of the other parts. Three weeks later extension had taken place so rapidly that complete eradication was impossible.

TYPE II.

CASE 7.—D. L. R., female, married, aged 62 years. Admitted to the New York Skin and Cancer Hospital, April 3, 1912.

Previous History.—For a year and a half before admission had had the usual symptoms of chronic constipation, gastric disorder, vomiting, with typical symptoms of "biliousness," and a slowly growing mass in the right iliac region. Later, diarrhea. Diagnosis of gallstones, with fecal retention in the ascending colon. Treated medically. Lost twelve pounds in weight. Diarrhea and cachexia had become quite marked by the time we first saw the patient.

Physical Examination.—Large mass in right iliac fossa, extending upwards almost to the liver.

Operation, exploratory laparotomy, April 26, 1913. Cauliflower-like cancer of caput coli, extending up to the ascending colon, and acting as a valve, flapping against the ileocecal opening. Small intestine secondarily involved. Irremovable.

NOTE.—Exploratory laparotomy at an earlier stage, when the diagnosis of gallstones was first made, would doubtless have rendered possible the thorough eradication of the disease. There was over a year of delay from the time of the appearance of the growth until the possibility of cancer was considered and surgical treatment instituted.

TYPE II.

CASE 8.—A. H., female, widow, aged 48, three children. Admitted to the New York Skin and Cancer Hospital, November 27, 1908.

Previous History. Seventeen months before admission patient began to suffer from "indigestion"—a constant burning behind the sternum, sometimes relieved by vomiting. Never vomited blood. Diagnosis of "nervous dyspepsia" made, and symptomatic treatment instituted. Vomiting increased in frequency. Great loss of flesh and strength. Upon admission to the hospital, when I first saw the patient, she had been unable to retain any food for many weeks.

Physical Examination.—Mass in pyloric region, size of an orange.

Operation.—December 4, 1908. An irremovable mass, with enlarged glands way up behind the stomach and liver. Pylorus occluded. Retrocolic gastro-jejunostomy performed.

Subsequent History.—Patient returned to the hospital June 11, 1909, complaining of vomiting after eating sweets—the first trouble after the operation. She was kept in bed for a time, on restricted diet. Continued in good health until May, 1911, when, after exposure, she contracted a severe cough, tuberculosis developed, and the patient died, in Bellevue Hospital, August 6, 1911.

NOTE.—This case emphasizes the importance of exploratory laparotomy in obscure abdominal conditions which, to the superficial clinician, appear to be "indigestion," "nervous dyspepsia," etc. An early operation would doubtless have enabled the patient to live out her allotted span. As it was, by the palliative measure employed, she lived 2½ years in fair health and comfort, and died of an entirely different condition.

TYPE III.

Cases of small cancer, diagnosed as Cancer, but having far more of something else present, the latter condition or conditions being mistaken for malignancy, or being considered too serious, in conjunction with the cancer, to warrant operative interference. Neglect in such cases allows an early and removable cancer to become advanced and perhaps irremovable, whereas, by exploration, it would be easily determined that the entire condition, including the small cancer, could be corrected by surgical procedure. Cases of this class are not so common as those of the first and second type, but undoubtedly many more would be found if exploratory laparotomy were more commonly and more carefully employed.

TYPE III.

CASE 9.*—J. L., female, married, aged 46 years. Admitted to the New York Skin and Cancer Hospital, April 29, 1907, referred by Dr. Henry McCastline, New York City.

Previous History.—Headache, pain in the back, dragging sensation on walking or standing, occasional vomiting. Enlargement of abdomen. Gradual loss of flesh and strength. Diagnosed as gallstones, with an ovarian cyst probably undergoing cancerous degeneration.

Physical Examination.—Enormous enlargement of abdomen.

Operation, April 30, 1907. Laparotomy. Removal of right ovarian cyst, which weighed twenty-six and one-half pounds. Left ovary contained small cysts and was the seat of a tumor the size of a hickory nut, which suggested beginning carcinoma and proved such upon microscopic examination. The left ovary and tube were excised. The appendix, which was bound down by adhesions, was removed. The gall-bladder was found much distended and containing gallstones. The gall-bladder was stitched into a vertical cholecystostomy wound just below the edge of the ninth costal cartilage. Two days later it was opened and fifty gallstones removed. Free drainage was allowed. No cancer found elsewhere than in the left ovary.

Subsequent History.—Uneventful recovery. Perfectly well, April 1, 1913.

NOTE—Upon the belief that cancerous degeneration of the ovarian cyst, and perhaps of the gall-bladder and ducts, had occurred, operation was not undertaken by the surgeon first consulted. Exploratory laparotomy, however, revealed the fact that the very small cancer of the other ovary, and the gallstones which were the real cause of the patient's discomfort, were also amenable to surgical treatment. Without exploratory laparotomy these facts could not be ascertained. Without the knowledge of the real condition, gained by such procedure, the patient would have been left to her fate.

TYPE IV.

Cases of Advanced Cancer, diagnosed as such, but made seemingly hopeless by an added condition which, in itself, is not of serious moment so far as prognosis is concerned. Correction of the complications, in this type of cases, is a matter of surgical technic, as is likewise the removal of the cancer.

TYPE IV.

CASE 10 —G. H., married, female, aged 54. Referred by Dr. Henry Hughes, W. Long Branch, N. J., November 10, 1909.

Previous History.—Rectal trouble, with chronic constipation, for three years. In May, 1909, laparotomy was performed by another surgeon, with the purpose of removing a cancer of the lower bowel, but so many adhesions were found that nothing was done, the case being considered one of inoperable cancer, with general visceral extension.

Physical Examination.—Chronic intestinal stasis. Marked cachexia. Great loss of flesh and strength. Lower pelvic colon almost totally obstructed by advanced cancer of rectum.

Operation, November 22, 1909. With the hope that the first operator had been mistaken in the extent of the disease, and believing that if this were

* Reported, with illustrations, in "Irremovable Cancer," *New York Medical Journal*, October 3, 1908, being an abstract of the Fourth Annual Clinical Lecture, delivered at the New York Skin and Cancer Hospital, April 22, 1908.

not the case, a colostomy would give relief, exploratory laparotomy was performed. Extensive adhesions found, but they were clearly from an old peritonitis following childbirth years before, and from the operation in May. These were separated. Diseased left ovary and tube found, salpingo-oophorectomy performed. By the combined operation, using the vaginal outlet, 2½ feet of intestine, with meso-rectum and meso-sigmoid, removed. Cut end of rectum was brought into the pelvis. Splincter, with last two inches of rectum, saved.

Subsequent History.—Uninterrupted recovery. Has at present some abdominal adhesions, necessitating the taking of cathartics, but has perfect control of bowel. Has gained thirty-eight pounds in weight, and is perfectly well, April 1, 1913.

NOTE.—This case emphasizes the importance of differentiating between malignant and non-malignant adhesion, between an inflammatory condition of tubes and ovaries (which pathological examination proved to be the case here, with no malignancy present), and cancer. Valuable time was lost by the failure to recognize these differences, and the patient was nearly sacrificed.

TYPE V.

Cases in which the Error in Diagnosis Concerns the Stage of Extent of the Cancer.—Seemingly inoperable and incurable cases may be operable and curable by resort to special methods, an example of which is the operation of arterial ligation, with "lymphatic block," which I have successfully employed in over fifty cases, twenty-four of which, with the *technic of the operation*, I have reported.*

TYPE V.

CASE 11.—C. U. S., female, widow, aged 44. Referred by Dr. Eliza M. Mosher, of Brooklyn, November 19, 1910.

Previous History.—Leucorrhœa, sometimes tinged with blood, for several years, especially since laceration of cervix at birth of fourth child. Diagnosis of irremovable cancer of uterus made by two surgeons.

Physical Examination.—Evidence of advanced cancer of uterus, with apparent involvement of broad ligaments and pelvic glands.

Operation. Alston's Private Sanitarium, November 15, 1910. Arterial ligation of pelvic vessels, with "lymphatic block;" panhysterectomy, with vaginectomy (Wertheim).

Subsequent History.—Uneventful recovery. April 1, 1913, strong and perfectly well.

NOTE.—Had the dictum expressed before this society by one of its distinguished members last year, to the effect that when the glands are palpable it is too late for even a Wertheim operation, been followed in this case, the patient would have been left to her fate. As it was, by tying off blood vessels and removing the glands along the ureters, from the obturator foramen to the receptaculum chyli, it became possible to do what seemed impossible before and a complete removal of all disease was effected.

TYPE VI.

Cases of Cancer in which the Error in Diagnosis concerns the type of malignant growth.—One type, of a given stage of development, or of a given extent, may be incurable; another, of a corresponding stage or extent, may be curable. It is fair to assume that such cases are not of very common occurrence, but they are none the less important, and should always be borne in mind.

TYPE VI.

CASE 12.—R. V.,† female, married, aged 29 years. First consulted me May 18, 1907.

* "Arterial Ligation for Irremovable Cancer of the Pelvic Organs: Technic Adapted and Amplified," *Woman's Medical Journal*, April, 1911.

† (1) "Irremovable Cancer," *New York Medical Journal*, October 3, 1908.

(2) "Oxygen in Medicine and Surgery: A Contribution, with Report of Cases," *New York State Journal of Medicine*, June 1908.

Previous History.—Patient had had an exploratory laparotomy in another city, the clinical diagnosis of round-celled sarcoma being made at that time, the growth being pronounced irremovable.

Physical Examination, and the history of the case did not warrant, in my opinion, the diagnosis of irremovable sarcoma, and another exploratory laparotomy was advised.

Operation, June 12, 1907, at the New York Skin and Cancer Hospital. Papillomatous degeneration of the uterus, tubes, and ovaries found, extending to the intestines and well up onto the liver. A detached portion was removed for microscopical examination, the report being "malignant papilloma." Ten days later panhysterectomy was performed and a large amount of fluid evacuated. A large papillomatous mass in the pelvis was also removed.

Subsequent History.—Since the above operations patient has undergone ten laparotomies, making twelve, by me, in addition to one by the other surgeon, and forty-nine tapplings for the evacuation of sero-sanguinous fluid. Every six months the abdomen is opened, more of the papillomatous material removed, and oxygen introduced by the method which I have described elsewhere.* The disease is much less extensive than it was six years ago. The fluid still collects in the abdomen, necessitating tapping. The patient remains in the hospital two or three weeks after each laparotomy, and two or three hours after each paracentesis abdominalis. She has no cachexia, her bowels move regularly, her color is good, she weighs forty pounds more than she did six years ago, is able to do her housework, and, except for the discomfort experienced when the abdomen fills up with fluid, feels perfectly well.

NOTE.—This case emphasizes the importance of differentiating the type of malignant neoplasm. Had this patient been the victim of sarcoma or adeno-carcinoma of a corresponding degree of extension when we first saw her, she would have been dead years ago. Had she been left without surgical intervention the malignant papilloma would have proved fatal long ago.

Moynihan, Rodman, Mayo, Kemp, Syme, Paterson, and many others, have called attention to the necessity for early exploratory laparotomy. The statistics of many hospitals are illustrative of the frequency of mistaken diagnosis in abdominal conditions. The proportion of cases of abdominal cancer in which this disease is first recognized on the operating table or at autopsy, is variously estimated, according to the part involved, at from twenty to sixty per cent.

It is not to be inferred that exploratory laparotomy is advocated indiscriminately, without a careful examination by all the diagnostic methods at our command, extending over a reasonable length of time. It is undeniable, however, that test meals, gastroscopic examinations, X-ray exposures, and the various other non-surgical diagnostic measures, with periods of trial treatment, may be the means, by virtue of the delay entailed, of plunging the patient into the slough of despondency—the irremovable stage of cancer, when only palliative measures can be employed.

We may not all be in accord with reference to the important question of the education of the layman concerning cancer. Let us, then, compensate for this lack of unity, and for the ignorance concerning cancer on the part of the laity which the campaign of education presupposes, by giving our patients the benefit of careful history-taking and thorough examination by all the methods applicable to the individual case. If, after this, the diagnosis is still in doubt, or if, after the institution for a *reasonable time* of such treatment as the case may seem to require, the symptoms still persist, the question of exploratory laparotomy should certainly take precedence over the abandonment of the patient to the hopelessness of "palliative medication."

* *Loc. cit.* (2). Also: "The Intra-Abdominal Administration of Oxygen," *Annals of Surgery*, March, 1906.